UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,444	10/08/2003	Oacar E. Agazzi	13439US08	7128

23446 7590 01/23/2006

MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER	
CORRIELUS, JEAN B	
ART UNIT	**PAPER NUMBER**
2637	

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/681,444	**Applicant(s)** AGAZZI ET AL.
	Examiner Jean B. Corrielus	**Art Unit** 2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _08 December 2005_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _71-85_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _71-85_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _08 October 2003_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. The last objection to claims 71-85 has been withdrawn in view of the comment filed on 12/8/05. However, upon further consideration, the claims are further objected to as follow. Claim 71, line 6, "state" should be deleted so as to be consistent with the specification page, see for instance paragraph 0024. The same comment applies to each claim reciting similar limitation.

Claims 72-85 are likewise objected to because of its dependency to claim 71.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "a state multiplication circuit expanding a single state representation output signal... into an N state representation signal", as recited in claim 84, the limitations recited in claim 80, lines 3-10, need to be provided proper antecedent basis in the specification.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the DFSE circuit as recited in claim 71 (note that the specification, see for instance paragraph 0114, only teaches that decoder circuit 38 includes a Viterbi decoder and incorporates circuitry to implement DFSE approach", however fig. 3 that represent an expanded view of decoder 28 does not show such feature of the decoder, in addition, the compensation circuit, as recited in claim 71, (note that the specification, see for instance paragraph 0234, teaches that the decoder 38 includes a Viterbi decoder and uses DFSE approach to deal with ISI), the limitation "adaptive circuitry" as recited in claim 71, the threshold module, the comparing module a decision module, as recited in claim 72 (note that the drawing only show a decision base approach, see fig. 32 and paragraph 0263, to disable the filter coefficients, there is no actual hardware involve; the buffer, the error computing module and the second comparing module, as recited in claim 74, the summing circuitry coupled to the MDFE, as recited in claim 80, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Terminal Disclaimer

5. The terminal disclaimer filed on 12/8/05 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,477,200 has been reviewed and is not accepted. An attorney or agent, not of record, is not authorized to sign a terminal disclaimer in the capacity as an attorney or agent acting in a representative capacity as provided by 37 CFR 1.34 (a). See 37 CFR 1.321(b) and/or (c).

Double Patenting

6. The double patenting rejection has been withdrawn in view of the terminal disclaimer, filed 12/8/05.

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

> Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 71-85 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 67-81 of U.S. Patent No. 6,477,200. Although the conflicting claims are not identical, they are not patentably distinct from each other because as per claim 71, the claim is fully encompassed by claim 67 of the related patent, as every limitations of claim 71 of the patent are included in claim 67 of the Patent. Given that fact, it would have been obvious to one skill in the ad to present claim 67 of this application as a broader version of claim 67 of the Patent so as to remove extra limitations from the claim in order to minimize costs associated with the implementation of the claimed invention.

Claim 72 corresponds to claim 68,

Claim 73 corresponds to claim 69,

Claim 74 corresponds to claim 70,

Claim 75 corresponds to claim 71,

Claim 76 corresponds to claim 72,

Claim 77 corresponds to claim 73,

Claim 78 corresponds to claim 74,

Claim 79 corresponds to claim 75,

Claim 80 corresponds to claim 76,

Claim 81 corresponds to claim 77,

Claim 82 corresponds to claim 78,

Claim 83 corresponds to claim 79,

Claim 84 corresponds to claim 80,

Claim 85 corresponds to claim 81, the same analysis applies to claim 71 applies.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 71, 72, 73 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chevillat et al US patent No. 5,031,195 in view of Yang et al US Patent No. 5,694,437 and further in view of Miller US Patent No. 4,805,215.

AS PER CLAIM 71, Chevillat discloses a communication device fig. 7 comprising a decision feedback sequence estimation circuit adapted to decode an input sample into a final decision corresponding to a codeword of a trellis code having N states see col. 5, line 63-col. 6, line 5 and fig. 6; an intersymbol interference compensation circuit configured to compensate an ISI component see col. 5, lines 34-36; Chevillat further teaches that the DFSE circuit further includes a DFE equalizer see col. 5, line 64 and col. 6, lines 24-25. However, it fails to teach that the DFE equalizer is a single estate decision feedback equalizer. It further fails to teach the additional limitations of an adaptive circuitry adapted to reduce power consumption of a filter, the filter having an initial set of active coefficients an input and an output, the active coefficients being ordered, a lowest ordered coefficient of the initial set being proximal to the input and each of the active coefficients having a stable value. Yang et al teaches an estimator comprising a single state equalizer. See col. 7, lines 56-58. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Chevillat et al in order to reduce the complexity of the equalizer. Furthermore, Miller teaches a communication device fig. 6 comprising an adaptive circuitry 130 134, 144 and 146 adapted to reduce power consumption of a filter, the filter having an initial set of active coefficients 1444 an input 124 and an output 136, note that Miller teaches that the taps are ordered from 1-25 see fig. 5 hence the coefficients supplied to the respective taps inherently have to be ordered as well in addition, since the first tap is proximal is proximal to the input the lowest order coefficient has to be proximal to the input al well I the active coefficients being ordered, a lowest ordered coefficient of the initial set being proximal to the input and Miller further teaches that the tap coefficient values are updated. Hence the updated tap coefficients inherently have to be stable. See abstract; col. 5, line 54—col. 6, line 13; col. 9, lines 11-31. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Chevillat and Yang in order to cancel signal echoes so as to improved signal quality.

As per claim 72, Miller further teaches a threshold module for generating a threshold; a comparing module coupled to the threshold module; the comparing module comparing an active coefficient with a threshold and a decision module coupled to the comparing module for deactivating the active coefficient according to a criterion. See fig. 6 elements 146, 144 and 130 and col. 5, lines 45-53. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Chevillat and Yang the motivation to do so would have been the same as provided above with respect to claim 71.

As per claim 73, Miller further teaches the decision module deactivates coefficient if the active coefficient has a value smaller than the threshold see col. 5, lines 50-53. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Chevillat and Yang the motivation to do so would have been the same as provided above with respect to claim 71.

As per claim 82, it is known in the art for an equalizer to includes coefficient related tail value and a low order subset of coefficient. Given that, it would have been obvious to incorporate the same in Chevillat Yang and Miller so as to ensure that the signal is efficiently equalized.

11. Claims 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chevillat et al US patent No. 5,031,195 in view of Yang et al US Patent No. 5,694,437 in view of Miller US Patent No. 4,805,215 and further of Nobakht US patent No. 6,009,120.

As per claim 76, as applied to claims 71 and 82 above, Chevillat, Yang and Miller disclose every feature of the claimed invention but does not explicitly teach an inverse partial response filter having an impulse response substantially an inverse of an impulse response of a pulse shaping filter of a remote transmitter so as to substantially compensate an input signal for an ISI component. Nobakht teaches an inverse partial response filter 80 having an impulse response substantially an inverse of an impulse response of a pulse shaping filter 30 of a remote transmitter so as to substantially compensate an input signal for an ISI component. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Chevillat Yang and Miller so as to ease removal of ISI from the received signal see Nobakht col. 5, lines 6-7.

As per claim 77, it would have been obvious to one skill in the art to implement the partial response filter with a characteristic feedback gain factor K in order to adjust level of the incoming signal.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Maxi-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jean Cornelius
Jean B Cornelius
Primary Examiner
Art Unit 2637 1-20-06